

September 20, 2006

Mr. Robert P. Gittens, Esq., Vice President
Government Relations and Community Affairs
Northeastern University
360 Huntington Avenue, 304CP
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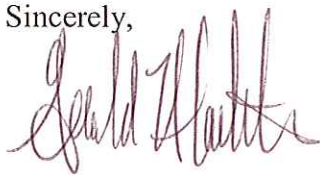
Re: **Scoping Determination for the proposed Third Amendment to the Institutional Master Plan and Proposed Residence Hall I, Building J, and Residence Hall K**

Dear Mr. Gittens:

Please find enclosed the Scoping Determination for the proposed Northeastern University Institutional Master Plan Amendment and proposed Residence Hall I, Building J, and Residence Hall K. The Scoping Determination describes information required by the Boston Redevelopment Authority in response to the Institutional Master Plan Notification Form/Project Notification Form, which was submitted under Article 80D and Article 80B of the Boston Zoning Code on July 10, 2006. Additional information may be required during the course of the review of the proposals.

If you have any questions regarding the Scoping Determination or the review process, please contact me at (617) 918-4438.

Sincerely,



Gerald Autler
Senior Project Manager / Planner

cc: Mark Maloney, BRA
Tom Miller, BRA

BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

FOR

NORTHEASTERN UNIVERSITY
INSTITUTIONAL MASTER PLAN AMENDMENT

AND

RESIDENCE HALL I/BUILDING J, RESIDENCE HALL K

PREAMBLE

Northeastern University ("Northeastern") completed an Institutional Master Plan that was approved by the Boston Redevelopment Authority ("BRA") Board of Directors on June 6, 2000 and by the Boston Zoning Commission on June 28, 2000 ("Approved IMP"). The Approved IMP describes Northeastern's mission and objectives, existing uses, structures, and activities, as well as proposed development plans for the campus. The BRA Board of Directors also approved two amendments to the Approved IMP: the First IMP Amendment on November 14, 2001 and the Second IMP Amendment in on August 5, 2004. Both amendments were subsequently approved by the Boston Zoning Commission.

In July, 2004 Northeastern and the City of Boston signed a Memorandum of Agreement ("MOA") requiring, among other things, that Northeastern submit one or more IMP amendments to the BRA to "...include two or more on-campus housing developments on Northeastern owned land containing a minimum of 1,250 student beds."

On July 10, 2006, Northeastern submitted to the BRA an Institutional Master Plan Notification Form/Project Notification Form ("IMP/NF/PNF") seeking an additional amendment ("IMP Amendment") to the Approved IMP and proposing two dormitories ("Proposed Projects") containing a total of 1,800 student beds, as well as some retail, office, conference rooms, and classrooms. The IMP/NF also proposes to incorporate a number of additional properties into Northeastern's IMP Overlay District.

The BRA will review the proposed IMP Amendment and Proposed Projects pursuant to two sections of Article 80 of the Boston Zoning Code ("Code"). The proposed IMP Amendment is being reviewed pursuant to Section 80D (Institutional Master Plan Review) and the Proposed Project is being reviewed pursuant to Section 80B (Large Project Review). These two review processes will be conducted in parallel but have somewhat different purposes and requirements.

As part of the BRA's Article 80 review, Northeastern is required to prepare and submit to the BRA two types of documents: a proposed IMP Amendment pursuant to Section 80D and, for each Proposed Project, a Draft Project Impact Report ("DPIR") pursuant to Section 80B. The former must set forth in sufficient detail the characteristics and planning framework of the institution to allow the BRA to make a determination about the merits of the proposed IMP Amendment. The latter must detail the specific urban design, transportation, environmental, and other impacts of the Proposed Project and must propose measures to mitigate, limit, or minimize such impacts. The proposed IMP Amendment and DPIR shall contain the information necessary to meet the specifications of Article 80 as well as any additional information requested below.

A scoping session was held on July 25, 2006 with public agencies and on the same day a public meeting was held at which the proposed IMP Amendment and Proposed Projects, as outlined in the IMPNF/PNF, were presented. Copies of the IMPNF/PNF were made available to residents of the Mission Hill, Roxbury, and Fenway neighborhoods in both hard copy and electronic format. Based on review of the IMPNF/PNF and related comments, as well as the scoping session and public meeting, the BRA hereby issues its written Scoping Determination ("Scope") pursuant to Section 80D-5.3 and Section 80B-5.3 of the Code. Northeastern is requested to respond to the specific elements outlined in this Scope. Comments from public agencies, elected officials, and the public, found in Appendixes 1, 2, and 3, respectively, are incorporated as a part of this Scope. Written comments constitute an integral part of the Scope and should be responded to in the IMP Amendment or in another appropriate manner over the course of the review process.

At other points during the public review of the IMP Amendment, the BRA and other City agencies may require additional information to assist in the review of the Proposed IMP Amendment and/or Proposed Projects.

To facilitate the preparation and review of the two documents referenced above, the Scope contains two discrete sections, one setting forth the submission requirements for the IMP Amendment, and another setting forth the submission requirements for the DPIRs. When appropriate, information requested in one section may be provided in the submission that responds to the other section.

In addition to the specific submission requirements outlined in the sections below, the following general issues should be noted:

- The City of Boston views its academic institutions as important economic and cultural assets and as valuable partners in a wide range of public policy priorities. However, while the benefits of Boston's academic institutions are felt across the city and even regionally, nationally, and globally, the negative impacts are generally limited to the immediate neighborhood. This dictates that both the BRA and academic institutions work to carefully balance the goals of vibrant institutions and healthy neighborhoods.
- It is the City's policy to encourage colleges and universities to expand their on-campus housing facilities for their students so that there is a decreasing use of private housing market resources in Boston neighborhoods by students. The BRA applauds Northeastern for proposing housing that will further Mayor Menino's policy which seeks to increase the number of students living in school controlled and managed housing rather than using scarce neighborhood housing resources.

- Northeastern, like a number of other academic institutions in Boston, is undergoing a transformation from a primarily commuter-serving school to a full-fledged residential campus. This type of transformation, including the addition of student housing, changes the character of the surrounding neighborhoods and can accentuate the impacts referenced above. Northeastern has shown a great willingness to work with its neighbors and should continue to use the IMP process as an opportunity to find ways to balance the needs of the institution with the needs of the surrounding neighborhoods.

Sensitive planning and development can serve not only to minimize and mitigate any negative impacts, but also to create benefits for the surrounding communities. The BRA encourages appropriate physical and economic linkages and ongoing relationships between institutions and abutting neighborhoods. Northeastern's campus in general, and the proposed project at Parcel 18 West in particular, abut key transportation nodes and pedestrian and bicycle corridors. Northeastern can play an important role in tying together neighborhoods, improving access to transit, and activating key streets, as well as creating neighborhood amenities and fostering local economic development.

SUBMISSION REQUIREMENTS

FOR THE

NORTHEASTERN UNIVERSITY IMP AMENDMENT

The Scope requests information required by the BRA for its review of the proposed IMP Amendment in connection with the following:

1. Approval of the Northeastern IMP Amendment pursuant to Article 80D and other applicable sections of the Code.
2. Recommendation to the Zoning Commission for approval of the Northeastern IMP Amendment.

The Northeastern IMP Amendment should be documented in a report of appropriate dimensions and in presentation materials which support the review and discussion of the IMP Amendment at public meetings. Thirty-five (35) hard copies of the full report should be submitted to the BRA, in addition to an electronic version in .pdf format. An additional thirty-five (35) hard copies of the document should be available for distribution to the Northeastern Task Force, community groups, and other interested parties in support of the public review process. The IMP Amendment should include a copy of this Scoping Determination. The IMP Amendment should include the following elements.

1. SUMMARY OF NORTHEASTERN'S INSTITUTIONAL MASTER PLAN

The IMP Amendment should provide a summary of the key points of the Approved Institutional Master Plan and previous IMP Amendments, including the following elements:

- **Mission and Objectives.** Present a summary of the mission and objectives articulated in the Approved IMP and the First and Second IMP Amendments, as well as an update on any changes in Northeastern's mission and objectives. In particular, the IMP Amendment should address the principles listed on Page 1-2 of the IMPNF. The IMP Amendment should explain the ways in which the Proposed Projects and their specific programmatic or design elements are compatible with these principles and advance Northeastern's broader mission and objectives.
- **Major Programs and Initiatives.** Describe any major academic programs or initiatives that will drive academic and physical planning in the future. Included in the description should be current and future trends that are impacting Northeastern and shaping program objectives.

2. EXISTING PROPERTY AND USES

The IMP Amendment should present maps, tables, narratives, and site plans clearly providing the following information:

- **Owned and Leased Properties.** Provide an inventory of land, buildings, and other structures in the City of Boston owned or leased by Northeastern as of the date of submission of the IMP Amendment, with the following information for each property. Buildings included in the Master Lease Property Program need not be included.
 - Illustrative site plans showing the footprints of each building and structure, together with roads, sidewalks, parking, and other significant improvements.
 - Land and building uses.
 - Building gross square footage and, when appropriate, number of dormitory beds or parking spaces.
 - Building height in stories and, approximately, in feet, including mechanical penthouses.
 - Tenure (owned or leased by Northeastern).
- **Master Lease Property Program.** Provide a list of properties that are part of Northeastern's Master Lease Property Program.

3. CAMPUS DEMOGRAPHICS

- **Student Population.** The IMP Amendment should provide a thorough explanation of past trends and future projections of the size and other characteristics of Northeastern's student body. These data should be referenced as appropriate in other sections, e.g. the Student Housing Plan should make clear the relationship between student population and student housing goals, including targets for percentage of students housed. The IMP Amendment should include, at a minimum, the following:
 - An explanation of past growth trends and any deviation from the projections outlined in Northeastern's Approved IMP dated February, 2000.
 - A description of procedures used to manage enrollment consistent with projections.
 - An explanation of Northeastern's target student enrollments for five years and 10 years in the future.
- **Student Residence Locations.** Present data on the residence locations of students living in Northeastern-owned dormitories as well as in other Boston-based housing, with a breakdown by level (undergraduate class, graduate students), Boston neighborhood and, to the degree possible, a distinction between students living in off-campus housing with parents as opposed to independently. This information may be integrated with the Student Housing Plan, described below, if desired.
- **Current Northeastern Employment.** Provide information Northeastern's employee population, disaggregated by faculty/staff, full-time/part-time, Boston residents/non-residents.

4. UNIVERSITY PLANNING FRAMEWORK

As stated in Northeastern's IMPNF, "It is the purpose of the Institutional Master Plan to provide an organizational framework for creating a physical plant and infrastructure that strengthen and celebrate the University's mission." Therefore, the IMP Amendment and proposed new development should be placed in the appropriate context: Northeastern should describe both the consistency of the proposed changes to the campus with the planning framework described in the Approved IMP and subsequent amendments, any impact of the proposed changes on that framework, and any new campus framework concepts that have emerged from the process undertaken to select sites for the proposed dormitories and other future projects. This section should discuss, at a minimum, the following:

- **Existing Context.** Describe Northeastern's place in the broader context of adjacent land uses, and the surrounding neighborhoods. Reference any City policies or plans that shape the planning context for the area and for Northeastern.
- **Anticipated or Projected Facilities Needs.** Describe, in general terms, any major facilities that the university might contemplate over the course of the next five years and 10 years.
- **Infrastructure and Utilities.** Given the projected expansion of Northeastern's physical plant, and in particular the addition of a significant number of new residents to the central campus, a systematic approach to infrastructure is necessary. The IMP Amendment should highlight any issues that may arise as a result of the Proposed Projects or future potential development, e.g. capacity constraints of Northeastern's on-campus power plant that may affect future potential development. Energy and stormwater management are two of the key infrastructure components that require a system-wide approach, and the IMP Amendment should make clear that this approach is being taken. For example, the roughly simultaneous development of both portions of P-18 presents opportunities for a coordinated approach to stormwater management and reuse for both projects. The IMP Amendment should also respond to all comments related to infrastructure and utilities included in the Appendixes.

5. URBAN DESIGN AND PUBLIC REALM

Conversations with the Task Force and the BRA that led to the current proposals included extensive discussions of the existing and potential future structure of Northeastern's campus. While these conversations focused primarily on appropriate locations for student housing in relation to the surrounding residential neighborhoods, they also addressed gateways to the campus, connections through the campus, and the role of Huntington Avenue, Columbus Avenue, and Tremont Street "main streets" and/or as transition zones between the campus and the surrounding neighborhoods. While it is understood that Northeastern's next IMP will be the forum for a more in-depth discussion of campus planning principles, the IMP Amendment should provide a concise summary of Northeastern's current vision of its campus, including the following.

- **Overview of Urban Design Guidelines and Objectives.** Discuss the Proposed Projects' compatibility with the urban design guidelines and objectives described in Section VII of the Approved IMP. Discuss any new or modified urban design guidelines and objectives that

have emerged from the recent planning process and strategies for implementing them in conjunction with the Proposed Projects or in the future.

- **Public Realm.** Discuss key urban design and public realm goals and objectives proposed by Northeastern for the campus, with a focus on creating a high-quality interface between the campus and the surrounding neighborhoods and transit stations. In particular, the IMP Amendment should discuss the current vision for integrating the Proposed Project on P-18 West, which abuts significant transit and park infrastructure, into a broader public realm framework.
- **Pedestrian Circulation Goals and Guidelines.** Provide a statement of goals and guidelines for pedestrian circulation both within and through Northeastern's campus (i.e. between neighborhoods and to and from Ruggles Station).

6. PROPOSED FUTURE PROJECTS

Article 80D Requirements. Pursuant to Article 80D, the IMP Amendment should provide the following information for each Proposed Project:

- Site location and approximate building footprint.
- Uses (specifying the principal subuses of each land area, building, or structure, such as classroom, laboratory, parking facility).
- Square feet of gross floor area.
- Square feet of gross floor area eliminated from existing buildings through demolition of existing facilities.
- Floor area ratio.
- Building height in stories and feet, including mechanical penthouses.
- Parking areas or facilities to be provided in connection with Proposed Projects;
- Any applicable urban renewal plans, land disposition agreements, or the like.
- Current zoning of site.
- Total project cost estimates.
- Estimated development impact payments.
- Approximate timetable for development of proposed institutional project, with the estimated month and year of construction start and construction completion for each.

Additional Proposed Future Projects. The language in the "Change in Use" section of the IMPNF is insufficient to fix the allowed and forbidden uses of the relevant parcels through the IMP Amendment mechanism as was agreed with the Task Force. Only the inclusion of a Proposed Future Project with all the information required by Article 80D can serve to fix the use and dimensional characteristics of a particular property. In addition to the narrative description of future uses discussed in the next section, the IMP Amendment should include Proposed Future Projects for Gainsborough Garage Lot, Gainsborough Parking Lot, Camden Lot, North Lot, and Ryder Lot, with the understanding that no Project Notification Form is being filed for these parcels and that any building will be subject to the relevant project-specific Article 80 review at such time that Northeastern chooses to undertake its development. Inclusion of these parcels as Proposed Future Projects may require additional comment and review, and the BRA reserves the right to issue a supplemental Scope to set forth the requirements for such review.

7. SUPPLEMENTAL INFORMATION ON PROPOSED PROJECTS AND USES

In addition to the information on Proposed Future Projects, the IMP Amendment should clarify several points for all properties referred to in the IMPNF in the “Proposed Institutional Projects” section, the “Change in Use” section, and the “List of University-Owned Properties” section. Specifically, the IMP Amendment should provide clarity on Northeastern’s intentions in three specific areas: 1) inclusion of properties in Northeastern’s Institutional Master Plan Overlay District; 2) proposed uses of existing structures; and 3) intended future uses of certain key parcels. The IMP Amendment should address as many of those areas as appropriate for each parcel.

- **Changes to the Institutional Master Plan Overlay District.** The IMP Overlay District is the feature of the Boston Zoning Code that allows institutional uses to be governed by the provisions of an Institutional Master Plan rather than by underlying zoning. However, only those parcels specifically requested to be added to the Institutional Master Plan Overlay District will be voted on by the Boston Zoning Commission as part of a zoning map amendment. The IMP Amendment should provide the following:
 - Lists and maps showing properties currently encompassed by the IMP Overlay District and those that Northeastern is petitioning the BRA Board and Boston Zoning Commission to incorporate into the IMP Overlay District. Northeastern should also be prepared to provide any additional information required by the Boston Zoning Commission to facilitate amendment of the relevant zoning maps.
 - A description of the underlying zoning currently in effect in the areas to be added to the Institutional Master Plan Overlay District through the IMP Amendment.
 - Appropriate tables and maps to clarify the request to amend the dimensional requirements for the IMP Overlay District.
- **Proposed Uses of Existing Structures.** Table 1-7 includes several structures acquired by Northeastern since 2000. Regardless of whether or not a structure is proposed as an addition to the IMP Overlay District, the IMP Amendment should provide more detail on intended uses for the duration of the Approved IMP, including estimates of space and time allocated to each use or user, site and building plans, and any other information required by the BRA over the course of the review. For properties not proposed to be added to the IMP Overlay District, the IMP Amendment should document the consistency of the uses with the underlying zoning.
- **Intended Future Uses/Possible Future Projects.** Given the context of Northeastern’s conversations with the Task Force and the larger community, the IMP Amendment should clearly state Northeastern’s future intentions with regard to the properties listed in the “Change in Use” section of the IMPNF and any other relevant parcels. In particular, the IMP Amendment should reiterate Northeastern’s stated intention to exclude North Lot and Camden Lot from consideration for future undergraduate housing. This narrative may be integrated with the information provided under Proposed Future Projects.
- **St. Ann’s Church and 109 Hemenway Street.** With regard to St. Ann’s Church and 109 Hemenway Street, the position of the BRA is that Institutional Master Plan Review is the appropriate mechanism for regulating uses, and that the properties should therefore be included in Northeastern’s IMP Overlay District. However, in order to provide clarity on future uses to both the BRA and the community, the IMP Amendment must provide more

information on the proposed uses for the duration of the term of the Approved IMP and beyond, including site and floor plans, information on users, time and space allotted for each use, and any other information requested by the BRA. Over the course of preparing its IMP Amendment, Northeastern should be prepared to engage in a discussion with the Fenway community and with the BRA and any other interested public agencies on the future of these properties. Northeastern should also provide an assessment of the physical condition of St. Ann's Church, although this information need not be included in the IMP Amendment.

8. INFORMATION RELATED TO PARCEL 18

- **Parcel 18 PDA Amendment.** Describe Northeastern's intended strategy and timing with regard to requesting appropriate modifications to the Planned Development Area ("PDA") Master Plan for Parcel 18 such that the IMP Overlay District can be extended to incorporate Parcel 18 West.
- **Parcel 18 East Economic Development.** Given Northeastern's commitment to making P-18 East available for economic development uses, Northeastern should provide, in the IMP Amendment or other appropriate forum, updates on the status of any projects being considered.

9. STUDENT HOUSING PLAN

Article 80D mandates that institutions submit a Student Housing Plan as part of the IMP. The IMP Amendment should build on the information already presented in the Approved IMP and the First and Second IMP Amendments, repeating information when necessary and updating the data and discussion to reflect the current situation and to place it in the context of the above sections. The IMP Amendment should address both the requirements set forth in Article 80D, which are reproduced below, and the additional requirements set forth in this section.

- **Article 80 Student Housing Plan Requirements.** Pursuant to Article 80D, the IMP Amendment should address the following:
 - The number of full-time undergraduate and graduate students living in housing facilities owned or operated by the Institution, including a breakdown by type of degree of program (undergraduate or graduate) and type of housing facility (dormitory, apartment, or cooperative housing facility).
 - The number of housing units owned or operated by the Institution, by type of housing facility (dormitory, apartment or cooperative housing facility).
 - Any housing requirements or restrictions the Institution places on its students (e.g. eligibility for on-campus housing, requirement to live on campus).
 - The process by which the Institution directs its students to housing facilities.
 - The Institution's short-term and long-term plans for housing its undergraduate and graduate students on-campus and off-campus.
 - Impacts of the Institution's student housing demand on housing supply and rental market rates in the surrounding neighborhoods, including those neighborhoods adjacent to the Institution's campus and other neighborhoods where the Institution's students are concentrated.

- A plan for mitigating the impacts of the Institution's student housing demand on surrounding neighborhoods.
- **Dormitory Occupancy Rates.** Given questions about the high cost of on-campus housing and Northeastern's ability to draw students out of off-campus rentals, the IMP Amendment should discuss any existing assessments of the demand for on-campus housing given current levels of rent both on and off campus, expected building occupancy for both Proposed Projects, and measures to ensure that the use of new beds is maximized, and the feasibility of such policies as requiring first and second year students to live in supervised housing.

10. STUDENT BEHAVIOR

Describe existing supervision and disciplinary procedures in dormitories, as well as policies related to student behavior generally. The IMP Amendment should discuss the impacts of changes in Northeastern's policies over the last few years, including additional supervision in housing included in the Master Lease Property Program.

11. TRANSPORTATION AND PARKING MANAGEMENT / MITIGATION PLAN

The following submission requirements relate to the proposed IMP Amendment; the DPIR will be required to present more specific information on the transportation impacts of the Proposed Projects. In addition to the submissions detailed in this Scope, Northeastern should continue to work closely with the Boston Transportation Department ("BTD") to outline an appropriate scope for studying and mitigating any transportation impact of the Proposed Projects.

- **Existing Conditions.** Provide a description of Northeastern's existing transportation and parking characteristics, including data on mode share for employees and students, parking spaces owned and operated by Northeastern, and policies regarding student and employee parking, transportation demand management measures in place, etc.
- **Impact of New Projects.** Clarify the impact of the Proposed Projects on parking demand and supply. Given that the IMPNF/PNF states that the Proposed Projects will lead to a decrease in parking demand from the projections in the Approved IMP, the IMP Amendment should provide information on the estimated timing of future parking construction. The IMP Amendment should also clarify if all 162 spaces at Parcel 18 West are used by the Boston Police Department.
- **Student Auto Ownership, Use, and Parking.** Describe Northeastern's current policies with regard to student ownership and use of automobiles, including the eligibility of students living in dormitories to obtain resident parking permits and any measures to enforce existing regulations.
- **Move-In/Move-Out Traffic Management Procedures.** Describe Northeastern's current procedures for managing traffic and parking impact generated by students moving into and out of dormitories, and any proposed changes to those procedures. This information may be consolidated with the Move-In/Move-Out Plan required as part of the DPIR.
- **Bicycle Transportation.** Given the proposed addition of a significant number of new residents to the campus, the IMP Amendment should discuss the adequacy of

Northeastern's existing bicycle storage facilities and the facilities to be included in the Proposed Projects or elsewhere on campus.

12. ECONOMIC DEVELOPMENT

The IMP Amendment should address the following topics:

- **Employment and Workforce Development.** Describe existing and proposed programs to train and hire Boston residents for Northeastern jobs.
- **Employment in Proposed Projects.** Present an estimate of the types and number of jobs that will be generated by the Proposed Projects when completed, including the estimated pay scale. The IMP Amendment should also describe how existing or proposed hiring and training programs will be used to maximize the employment benefits of the Proposed Projects to Boston residents.
- **Retail Market Potential.** Given the proposed inclusion of retail space in the development at Parcel 18 West, the IMP Amendment should provide additional information on the types of retail establishments contemplated and their market viability, bearing in mind the existing residential population of the area, the addition of a student population on Parcel 18 West and potential hotel on Parcel 18 East, and the potential development of Parcel 3. The IMP Amendment should also describe any anticipated impacts on existing retail establishments.
- **Future Economic Development Goals and Strategies.** The City of Boston views its academic institutions as tremendous assets and as valuable partners in economic development. Northeastern's ongoing evolution will provide additional opportunities for cooperation with the City on key economic development goals. The City looks forward to working with Northeastern in the future, including in conjunction with the next IMP, to explore ways that Northeastern's positive economic impacts can be increased. Among the topics of particular interest are: public education and workforce development, technology transfer and commercialization of research, and purchasing and small business development.

13. COMMUNITY BENEFITS PLAN

- **Community Benefits Process.** At the appropriate time, the BRA will determine the best way to incorporate a discussion of community benefits into the Article 80 process.
- **PILOT Payments.** Describe Northeastern's current Payment-In-Lieu-Of-Taxes (PILOT) program and proposed future payments. The Assessing Department typically requests to meet with institutions to discuss their PILOT programs; Northeastern should initiate such a meeting.

14. ENVIRONMENTAL SUSTAINABILITY

The City of Boston expects a high level of commitment to principles of sustainable development from all developers and institutions. Northeastern's ongoing campus expansion provides exciting opportunities for innovation and excellence not only in individual buildings, but across the campus as a whole. Northeastern will be expected to work with the BRA, the Green Roundtable, the City of Boston Environment Department, and others to set and meet ambitious environmental sustainability goals in both the IMP Amendment and in the design of the Proposed Projects. The IMP Amendment should present as much information as possible on

the topics below, with the understanding that not all of them may be relevant at the current time, but that a comprehensive approach to sustainability will be expected in Northeastern's next IMP. Additional topics related to sustainability are included in the DPIR Scope for the Proposed Projects.

- **Existing Sustainability Measures.** Document and describe Northeastern's existing sustainability measures at the building and campus-wide level, including but not limited to energy, stormwater, solid waste, transportation, and infrastructure and utilities. Explain the administrative structure for making decisions about and promoting innovation in the area of building a sustainable campus. Describe any formal goals or principles that Northeastern has adopted in the area of sustainability.
- **Potential Future Sustainability Programs and Plans.** Discuss additional sustainability initiatives that could be adopted in conjunction with this IMP Amendment or in the future. Sustainable features of the Proposed Projects should be described in the DPIRs.
- **Green Building.** New campus buildings should achieve a superior level of performance in the areas of materials and resources (recycled content, construction waste management, local/regional materials), energy (energy performance, renewable energy), water management (water efficiency, stormwater management, graywater and stormwater recycling, etc.), indoor environmental quality, and other standard performance areas of high-performance or "green" buildings. Whenever possible, buildings should achieve a high level of certification through LEED or another appropriate system.
- **Energy Use.** Future campus development should consider the impact of new buildings on the existing heating and cooling infrastructure. Reducing the current energy use of existing buildings should be addressed prior to expanding or building new power plants. Planning should consider the possible benefits of localized heating and cooling systems within a section of the campus or within an individual building, allowing for alternative energy sources to be easily explored.
- **Water Use.** Future campus development should incorporate water use, conservation, and rainwater harvesting strategies at a campus level. New construction allows opportunities for storage systems to be installed for use by the new and adjacent buildings. Collected water can be used for flushing, HVAC make-up water, and irrigation.
- **Stormwater Retention/Treatment/Reuse and Groundwater Recharge.** Northeastern's development should go beyond the minimum requirements related to stormwater runoff. In particular, the new developments proposed as part of this IMP Amendment should set a goal of reducing stormwater discharge from the sites into the storm sewers, not simply avoiding any additional runoff as is stated in the IMPNF. This goal should be considered in conjunction with strategies for reuse of retained stormwater and strategies for groundwater recharge, both where required (Residence Hall K) and not required but still potentially desirable (Parcel 18 East and West). The need to excavate contaminated soil from Parcel 18 may afford opportunities for on-site stormwater retention at little or no additional cost. Individual building design, site design, and street-level interventions should all maximize the opportunities for stormwater retention, treatment, and reuse, as well as groundwater recharge, through innovative approaches. To the extent possible, the systems put in place should strive to work with the natural hydrology of the area.
- **Solid Waste.** Campus master planning should set the goal of reducing the level of solid waste generation in both the construction and operation of buildings.

- **Landscape and Natural Features.** A well-considered program of landscape design can not only create a high-quality aesthetic realm but can also enhance regional biodiversity, help mitigate air pollution, reduce heating and air conditioning costs and associated energy consumption, reduce water consumption, and reduce stormwater runoff and water pollution. Sustainability should be a primary consideration in the design of the campus open space system as a whole as well as the design of individual spaces and the design of the roadway network.
- **Performance Standards and Indicators.** Over the long term, Northeastern should commit not only to broad sustainability principles, but also to specific performance standards and a system of indicators and metrics to track performance.

15. OTHER

- **Public Notice.** Northeastern will be responsible for preparing and publishing in one or more newspapers of general circulation in the city of Boston a Public Notice of the submission of the IMP Amendment to the BRA as required by Section 80A-2. This Notice shall be published within five (5) days after the receipt of the IMP Amendment by the BRA. In accordance with Article 80, public comments on the IMP Amendment shall be transmitted to the BRA within sixty (60) days of the publication of this notice. A sample form of the Public Notice is attached as Appendix 4. Following publication of the Public Notice, Northeastern shall submit to the BRA a copy of the published Notice together with the date of publication.

SUBMISSION REQUIREMENTS

FOR

NORTHEASTERN UNIVERSITY

RESIDENCE HALL I/BUILDING J, RESIDENCE HALL K

The Scope requests information required by the BRA for its review of the Proposed Projects in connection with the following:

1. Certification of Compliance and approval of the Proposed Project pursuant to Article 80, Section 80B of the Code.
2. Certification of Consistency with the DFCI Institutional Master Plan pursuant to Article 80, Section 80D-10 of the Code.

The requirements below apply to the Draft Project Impact Reports (DPIRs) for both Proposed Projects. Given the differences between the two sites and Proposed Projects, at the discretion of the BRA, specific requirements may be waived for one or the other DPIR, as appropriate.

Subsequent to the end of the forty-five (45) day public comment period on the DPIR, the BRA will issue a Preliminary Adequacy Determination ("PAD") that indicates the additional steps necessary for Northeastern to satisfy the requirements of the Scoping Determination and all applicable sections of Article 80 of the Code. If the BRA finds that the DPIRs adequately describe the Proposed Projects' impacts and, if appropriate, propose satisfactory measures to mitigate, limit or minimize such impacts, the PAD will announce such a determination and that the requirements for the filing and review of a Final Project Impact Report ("FPIR") are waived pursuant to Section 80B-5.4(c)(iv) of the Code. Before reaching said findings, the BRA shall hold a public hearing pursuant to Article 80 of the Code. Sections 80B-6 and 80D-10 require the Director of the BRA to issue a Certification of Compliance and a Certification of Consistency, respectively, before the Commissioner of Inspectional Services can issue any building permit for the Proposed Projects.

The DPIR may be consolidated with the IMP Amendment. In addition to full-size scale drawings, thirty-five (35) hard copies of the full bound report should be submitted to the BRA, in addition to an electronic version in .pdf format. An additional thirty-five (35) hard copies of the document should be available for distribution to the Northeastern Task Force, community groups, and other interested parties in support of the public review process. The report should contain all submission materials reduced to size 8-1/2"x11", except where otherwise specified, and should be printed on both sides of the page. A copy of this Scoping Determination must be included in the report submitted for review.

The DPIRs should include the following elements.

1. GENERAL INFORMATION

- **Applicant/Proponent Information.** Pursuant to Article 80B, the DPIR should provide the following information:
 - Development Team
 - Names of developer(s), including description of development entity(ies), attorney, project consultants and architects.
 - Business address, telephone number, fax number and e-mail, where available, for each.
 - Designated contact for each.
 - Legal Information
 - Legal judgments or actions pending concerning the Proposed Project
 - History of tax arrears on property owned in Boston by Applicant.
 - Evidence of site control over project area, including current ownership and purchase options of all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the Proponent's right or ability to accomplish the Proposed Project, and the nature of the agreements for securing parcels not owned by the Applicant.
 - Nature and extent of any and all public easements into, through, or surrounding the site.
- **Disclosure of Beneficial Interests.** Disclosure of Beneficial Interests in the Proposed Project must be provided pursuant to Section 80B-8 of the Boston Zoning Code.
- **Regulatory Controls and Permits.** The DPIR shall include an up-to-date listing of all anticipated permits or approvals required from other municipal, state or federal agencies, including a proposed application schedule. A statement on the applicability of the Massachusetts Environmental Policy Act ("MEPA") should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BRA, including but not limited to, copies of the Environmental Notification Form, decisions of the Secretary of Environmental Affairs, and the proposed schedule for coordination with BRA procedure.

2. PROJECT DESCRIPTION

- **Project Site.** The DPIR shall include a complete description of the Project Site including, at minimum, square footage of the site, a map indicating the boundaries, a legal description including metes and bounds, existing site conditions, and the surrounding development context, i.e. a description of the surrounding environment including the height, other dimensions, use, and other relevant characteristics of existing nearby buildings, as well as an inventory of surrounding proposed projects. Only projects that have completed or are currently undergoing Article 80 review should be included and should be included as proposed in their filings at the Boston Redevelopment Authority. The Project Site, as defined in the DPIR, must be utilized for each Project Description and for any calculations or comparisons.

- **Project Description.** The DPIR shall contain a full description of the Proposed Project and any alternative(s) and their elements, including size, physical characteristics, FAR (utilizing the definition for calculation as provided for in the Boston Zoning Code), and proposed uses, including any uses planned or considered for all elements of the project during the summer months.

3. PROJECT ALTERNATIVES

The analyses as provided for in the Transportation Component, Environmental Protection Component, and Urban Design Component sections of this Scoping Determination, as well as any additional analysis specified by the BRA, shall be required for the following alternatives:

- **Alternative 1.** No build as a means of measuring the baseline.
- **Alternative 2.** The Proposed Project as set forth in PNF or as modified via formal notification to the BRA in advance of submission of the DPIR.
- **Alternative 3.** Any additional alternative or alternatives defined by the BRA. As of the date of issuance of this Scope, the BRA does not intend to require analysis of any alternative but the two described above; however, the BRA reserves the right to extend the requirement of any and all elements of the analysis described herein to an additional alternative.

4. TRANSPORTATION COMPONENT

The DPIR shall include a detailed traffic and transportation analysis that examines the Proposed Project's impact on the transportation network and proposes measures intended to mitigate, limit, or minimize any adverse impact reasonably attributable to the Proposed Project. The scope of the analysis must utilize as its framework the Transportation Access Plan guidelines to be further defined in consultation with the Boston Transportation Department ("BTD"). Pursuant to Section 80B-3.1 of the Boston Zoning Code, this section of the DPIR should contain, at a minimum, the following elements. Additional questions and required submissions have been added to the baseline requirements of Article 80 based on concerns specific to the project and on comment letters.

- **Traffic Management Element.** Northeastern shall work with BTD to:
 - Identify the Proposed Project's impact on the transportation network from expected travel volumes, vehicle trip generation, and directional distribution; the location of loading and unloading activities, including service and delivery; the Proposed Project's impact on the vehicular and circulation systems within the impact area, including the number and type of vehicles, pedestrians, and bicyclists, vehicle occupancy rates (VOR), and the Proposed Project's impact on road corridors and intersection capacities, including Levels of Service and intersection delays from 6:00 a.m. to 8:00 p.m. and for any other times of day that significant activity is anticipated in the Proposed Project.
 - Inventory, map, and discuss on- and off-street loading, provide estimates of the level of loading and delivery activity, and describe in detail any special loading policies and procedures to be implemented.
 - Identify mitigation procedures that are intended to mitigate, limit, or minimize the number of vehicle trips generated by the development, and the Proposed Project's

interference with the safe and orderly operation of the transportation network; such measures may include an on-site traffic circulation plan, flexible employee work hours, dissemination of transit information, changes in traffic patterns, and full or partial subsidies for public mass transit.

- The DPIR shall describe Transportation Demand Management ("TDM") measures that are being considered for the Proposed Project.
- Review provisions for service and emergency vehicle access to the proposed dormitory building.
- **Parking Management Element.** Northeastern shall work with BTM to:
 - Identify the location of proposed drop-off/pick-up, short-term parking, loading, and queuing for both autos and trucks. If no queuing area is available for trucks, identify steps to be taken to avoid negative impacts, referencing the projected frequency of delivery activity and any operational procedures to ensure that deliveries are adequately timed and spaced out.
 - Identify the demand created by the Proposed Project for tenant, commuter, and short- and long-term visitor parking; nontenant and other parking needs within the Impact Area; and evening and weekend parking needs
 - Include operational policies and strategies for the Proposed Project that address the location, cost, and number of public, private, high-occupancy vehicle, and special-needs parking demand; short-term and long-term space availability; pricing structure of parking rates; location and type of off-site parking; and methods of transporting people to the site from off-site parking;
 - Document parking impacts of the Proposed Project. Describe alternative off-street parking locations for displaced parkers as necessary.
- **Article 80 Construction Management Element.** The Construction Management Element shall, at a minimum:
 - Identify the impact from the timing and routes of truck movement and construction deliveries for the Proposed Project; proposed street closings; and the need for employee parking.
 - Identify, and provide a plan for implementing, mitigation measures that are intended to mitigate, limit, or minimize, to the extent economically feasible, the construction impact of the Proposed Project by limiting the number of construction vehicle trips generated by the Proposed Project, the demand for construction-related parking (both on-site and off-site), and the interference of building construction with the safe and orderly operation of the Transportation Network, such measures to include the use of alternative modes of transport for employees and materials to and from the site; appropriate construction equipment, including use of a climbing crane; staggered hours for vehicular movement; traffic controllers to facilitate equipment and trucks entering and exiting the site; covered pedestrian walkways; alternative construction networks and construction planning; and restrictions of vehicular movement
 - Designate a liaison between the Proposed Project, public agencies, and the surrounding residential and business communities.

- **Move-In/Move-Out Plan.** The DPIR should describe the plan to limit the impact of a large number of residents moving into and out of the Proposed Project within the span of a few days on both building residents and neighbors. The Move-In/Move-Out Plan shall address, at a minimum, the following:
 - A description of the procedures used at Northeastern's existing dormitories to ensure orderly move-in and move-out with a minimum of disruption to the neighborhood, and the planned procedures for the Proposed Project. This should address, among other things, vehicular access and parking, use of loading docks, and handling of garbage.
 - A statement of the peak move-in/move-out periods and an estimate of the number of move-ins/move-outs per day and over the course of the period as a whole, based on data from Northeastern's existing dormitories.
 - A description and explanation of the adequacy of the Proposed Project's design features relevant to move-in and move-out capacity, in particular those features related to vehicular access, loading docks, elevator capacity, etc.
- **Pedestrian Analysis.** Address the adequacy of sidewalks and other pedestrian infrastructure in the area of the Proposed Projects and potential safety issues at pedestrian crossings. Propose improvements to facilitate pedestrian circulation to and around the Proposed Projects and ways that development can improve the overall pedestrian circulation system of the campus, as well as pedestrian access to and from Ruggles and Massachusetts Avenue MBTA stations.
- **Mitigation.** Identify measures to mitigate any transportation impacts identified in the preceding sections.

5. ENVIRONMENTAL PROTECTION COMPONENT

The DPIR shall contain an Environmental Protection Component as outlined below. Opportunities for sustainable design, as well as other issues, are described in the written comments from public agencies. These comments are included in Appendix 1 and are incorporated herein by reference and made a part hereof. The analyses as provided for in the Environmental Protection Component section of this Scoping Determination shall be required for each of the alternatives.

- **Wind.** A quantitative wind tunnel analysis of the potential pedestrian level wind impacts shall be required for the DPIR. This analysis shall determine potential pedestrian level winds adjacent to and in the vicinity of the project site and shall identify the projected annual wind speeds for each season at each location. Expected wind levels should be reported using the amended Melbourne scale. The DPIR shall identify any areas where wind velocities are expected to exceed acceptable levels, including the BRA's guideline of an effective gust velocity of 31 mph not to be exceeded more than 1% of the time.

Particular attention shall be given to areas of pedestrian use, including, but not limited to, the entrances to the proposed buildings and existing buildings in the vicinity of the Proposed Project, the sidewalks and walkways within and adjacent to the Proposed Project development and in the vicinity of the proposed development, the Southwest Corridor Park, and the southern entrance to Ruggles Station. Specific locations to be evaluated shall be determined in consultation with the BRA and the City of Boston Environment Department.

For areas where wind speeds are projected to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impact shall be identified and tested in the wind tunnel to quantify the expected benefit. Should the qualitative analysis indicate the possibility of excessive or unacceptable pedestrian level wind speeds, additional study may be required.

The wind tunnel testing shall be conducted in accordance with the following guidelines and criteria:

- Data shall be presented for both the existing (no-build) and for the future build scenario(s) (see above).
- The analysis shall include the mean velocity exceeded 1% of the time and the effective gust velocity exceeded 1% of the time. The effective gust velocity shall be computed as the hourly average velocity plus $1.5 \times \text{root mean square variation about the average}$. An alternative velocity analysis (e.g., equivalent average) may be presented with the approval of the Authority.
- Wind direction shall include the sixteen compass points. Data shall include the percent or probability of occurrence from each direction on seasonal and annual bases.
- Results of the wind tunnel testing shall be presented in miles per hour (mph).
- Velocities shall be measured at a scale equivalent to an average height of 4.5-5 feet.
- The model scale shall be such that it matches the simulated earth's boundary and shall include all buildings within at least 1,600 feet of the project site. All buildings taller than 25 stories and within 2,400 feet of the project site should be placed at the appropriate location upstream of the project site during the test. The model shall include all buildings recently completed, under construction, and planned within 1,500-2,000 feet of the project site. Prior to testing, the model shall be reviewed by the Authority. Photographs of the area model shall be included in the written report.
- The written report shall include an analysis which compares mean and effective gust velocities on annual and seasonal bases, for no-build and build conditions, and shall provide a descriptive analysis of the wind environment and impacts for each sensor point, including such items as the source of the winds, direction, seasonal variations, etc., as applicable. The report shall also include an analysis of the suitability of the locations for various activities (e.g., walking, sitting, standing, driving etc.) as appropriate, in accordance with Melbourne comfort categories.
- The report also shall include a description of the testing methodology and the model, and a description of the procedure used to calculate the wind velocities (including data reduction and wind climate data). Detailed technical information and data may be included in a technical appendix but should be summarized in the main report.
- The pedestrian level wind impact analysis report shall include, at a minimum, the following maps and tables:
 - Maps indicating the location of the wind impact sensors, for the existing (no-build) condition and future build scenario(s).
 - Maps indicating mean and effective gust wind speeds at each sensor location, for the existing (no-build) condition and each future build scenario, on an annual basis and seasonally. Dangerous and unacceptable locations shall be highlighted.

- Maps indicating the suitability of each sensor location for various pedestrian-related activities (comfort categories), for the existing (no-build) condition and each future build scenario, on an annual basis and seasonally. To facilitate comparison, comfort categories may be distinguished through color coding or other appropriate means. In any case, dangerous and unacceptable conditions shall be highlighted.
 - Tables indicating mean and effective gust wind speeds and the comfort category at each sensor location, for the existing (no build) condition and for each future build scenario, on an annual basis and seasonally.
 - Tables indicating the percentage of wind from each of the sixteen compass points at each sensor location, for the existing (no-build) condition and for each future build scenario, on an annual basis and seasonally.
 - All maps should include a north arrow and be oriented and of the same scale as shadow diagrams.
- **Shadow.** A shadow analysis shall be required for existing and build conditions for the hours 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice and for 6:00 p.m. during the summer and autumn. This analysis should use the same metrics as applied by Mass. DEP for Chapter 91 shadow analyses and include documentation of net new shadows lasting more than one hour. It should be noted that due to time differences (daylight savings vs. standard), the autumnal equinox shadows would not be the same as the vernal equinox shadows and therefore separate shadow studies are required for the vernal and autumnal equinoxes. Shadows shall be determined using the Boston Altitude and Azimuth data (Sun Altitude/Azimuth Table, Boston, Massachusetts).

The shadow impact analysis must include net new shadow as well as existing shadow. Diagrams must clearly show the incremental impact of the proposed new buildings. For purposes of clarity, new shadow should be shown in a dark, contrasting tone distinguishable from existing shadow. The shadow impact study area shall include, at a minimum, the entire area to be encompassed by the maximum shadow expected to be produced by the Proposed Project (i.e., at the winter solstice). The build condition shall include all buildings under construction and any proposed buildings anticipated to be completed prior to completion of the Proposed Project. Shadow from all existing buildings within the shadow impact study area shall be shown. A North arrow shall be provided on all figures and street names, doorways, bus stops, open space and areas where pedestrians are likely to congregate (in front of historic resources or other tourist destinations, for example) should be identified.

Particular attention shall be given to areas of pedestrian use, including, but not limited to, the entrances to the project buildings and existing buildings in the vicinity of the Proposed Project, the sidewalks and walkways within and adjacent to the Proposed Project development and in the vicinity of the proposed development, the Southwest Corridor Park, and the southern entrance to Ruggles Station.

The DPIR should propose mitigation measures to minimize or avoid any adverse shadow impact.

- **Combined Wind and Shadow Impacts.** Figures depicting no-build and build wind monitoring locations should be of an orientation and scale consistent with that used for shadow diagrams so that the cumulative effect of wind and shadow can be determined.
- **Daylight.** A daylight analysis for both build and no-build conditions shall be conducted by measuring the percentage of skydome that is obstructed by the Proposed Project and evaluating the net change in obstruction. The study should treat two elements as controls for data comparisons: existing conditions and context examples. The publicly defined areas of interest include Tremont Street, Ruggles Street, the Southwest Corridor Park, and St. Botolph Street. Daylight analyses should be taken for each major building facade fronting these essentially public ways or open spaces. The midpoint of each public accessway or roadway should be taken as the study point. The BRADA program must be used for this analysis.
- **Solar Glare.** The DPIR should discuss the potential for solar glare and, if necessary, proposed measures to study the impact in more detail.
- **Air Quality.** The Proposed Project does not include any parking spaces that would typically generate air emissions. Air emissions will be related only to the loading dock.

The DPIR shall describe the existing and projected future air quality in the project vicinity and shall evaluate ambient levels to determine conformance with the National Ambient Air Quality Standards and U.S. Department of Housing and Urban Development (HUD) requirements for residential and other sensitive receptors. Particular attention shall be given to mitigation measures to ensure compliance with air quality standards.

A future air quality (carbon monoxide) analysis shall be required for any intersection (including the garage entrances/exits) where level of service (LOS) is expected to deteriorate to D and the Proposed Project causes a 10 percent increase in traffic or where the level of service is E or F and the Proposed Project contributes to a reduction of LOS. Notwithstanding this limitation, Northeastern shall consult with the BRA and the Massachusetts Department of Environmental Protection (DEP) to determine whether air quality analyses should be performed at any other intersections in the vicinity of the project site, based on traffic projections. The methodology and parameters of the traffic-related air quality analysis shall be approved in advance by the Boston Redevelopment Authority and the Massachusetts Department of Environmental Protection. The results of the air quality analysis shall be compared to the Massachusetts State Implementation Plan to determine project compliance with the Plan. Mitigation measures to eliminate or avoid any violation of air quality standards shall be described.

A description of the project's heating system and of the loading dock ventilation system, including location of intake and exhaust vents and specifications, and an analysis of the impact on pedestrian level air quality and on any sensitive receptors from operation of the heating and exhaust systems shall be required. Measures to avoid any violation of air quality standards shall be described.

- **Solid and Hazardous Wastes.** The presence of any contaminated soil or groundwater and any underground storage tanks at the project site shall be evaluated and remediation measures to ensure their safe removal and disposal shall be described. Any assessment of site conditions pursuant to the requirements of M.G.L. Chapter 21E that has been or will be prepared for the site shall be included in the DPIR (reports may be included in an appendix

but shall be summarized in detail, with appropriate tables and figures, within the main text). Materials in the building to be demolished should be characterized and measures to mitigate impacts during demolition should be identified.

The DPIR shall quantify and describe the generation, storage, and disposal of all solid wastes from the construction and operation of the Proposed Project. The DPIR shall identify the specific nature of any hazardous wastes that may be generated and their quantities and shall describe the management and disposal of these wastes. In addition, measures to promote the reduction of waste generation and recycling, particularly for paper, glass, plastics, metals, and other recyclable products, and compliance with the City's recycling program, shall be described in the DPIR.

- **Noise.** The DPIR shall establish the existing noise levels at the project site and vicinity based upon a noise-monitoring program and shall calculate future noise levels after project completion based on appropriate modeling and shall demonstrate compliance with the Design Noise Levels established by the U.S. Department of Housing and Urban Development for residential and other sensitive receptors and with all other applicable Federal, State, and City of Boston noise criteria and regulations. Any required mitigation measures to minimize adverse noise impacts shall be described.

An analysis of the potential noise impacts from the project's mechanical and exhaust systems, including emergency generators, and compliance with applicable regulations of the City of Boston shall be required. A description of the project's mechanical and exhaust systems and their location shall be included. Measures to minimize and eliminate adverse noise impacts on nearby sensitive receptors, including the project itself, from mechanical systems and traffic shall be described.

The DPIR should identify the potential for adverse noise impacts stemming from building activities and occupants, referencing any noise impacts from Northeastern's other dormitories and any relevant similarities or differences between those facilities and the Proposed Project, e.g. operable windows.

- **Nighttime Lighting.** The impact of both interior and exterior lighting on the residents of nearby buildings is a concern. The DPIR should explain, in text or graphics as appropriate:
 - The type of exterior lighting to be used on each façade or other portion of the building and the elements of the design that mitigate nighttime lighting impacts of the building on surrounding areas.
 - The DPIR should specify the type of interior lighting (i.e. fluorescent vs. incandescent, recessed or not) to be used in each portion of the building and, in the case of the common areas and non-residential portions of the program, the hours that the lighting will be on. The DPIR should also discuss the measures being taken to minimize the impact of interior lighting on the surrounding areas.
- **Stormwater Management/Water Quality.** Stormwater management requirements and suggestions are included in the section on environmental sustainability below.
- **Flood Hazards/Wetlands.** Describe any affected flood hazard zones or wetlands and proposed actions.

- **Tidelands/Chapter 91.** The project site does not include tidelands, and Chapter 91 does not apply to the Proposed Project.
- **Geotechnical Impact/Groundwater.** A description and evaluation analysis of existing sub-soil conditions at the project site, groundwater levels, potential for ground movement and settlement during excavation and foundation construction, and potential impact on adjacent buildings, utility lines, and the roadways shall be required. This analysis shall also include a description of the foundation construction methodology, the amount and method of excavation, and measures to prevent any adverse effects on adjacent buildings, utility lines, and roadways. Measures to ensure that groundwater levels will be maintained and will not be lowered during or after construction also shall be described. In addition, the geotechnical analysis shall evaluate the earthquake potential in the project area and shall describe measures to be implemented to mitigate any adverse impacts from an earthquake event.
- **Construction Impacts.** A construction impact analysis shall include a description and evaluation of the following:
 - Measures to protect the public safety.
 - Potential dust and pollutant emissions and mitigation measures to control these emissions.
 - Potential noise generation and mitigation measures to minimize increase in noise levels.
 - Location of construction staging areas and construction worker parking; measures to encourage carpooling and/or public transportation use by construction workers.
 - Construction schedule, including hours of construction activity.
 - Access routes for construction trucks and anticipated volume of construction truck traffic.
 - Construction methodology (including foundation construction), amount and method of excavation required, disposal of the excavate, description of foundation support, maintenance of groundwater levels, and measures to prevent any adverse effects or damage to adjacent structures and infrastructure.
 - Method of demolition of the existing building on the project site and disposal of the demolition debris.
 - Potential for the recycling of construction and demolition debris, including asphalt from the existing parking lots.
 - Measures to make construction fencing as attractive as possible to ensure the visual character of the streetscape.
 - Identification of best management practices to control erosion and to prevent the discharge of sediments and contaminated groundwater or stormwater runoff into the City's drainage system during the construction period.
 - Impact of project construction on rodent populations and description of the proposed rodent control program, including frequency of application and compliance with applicable City and State regulatory requirements.
 - Northeastern's plan for handling demolition debris and construction waste, including a description of The DPIR should discuss how recycling, reuse and reprocessing will be conducted. Building demolition may offer an opportunity for recycling, reprocessing or donation of construction and building materials (e.g., glass, brick, stone, interior furnishing) to the Building Materials Resource Center ("BMRC"). Northeastern is encouraged to contact the BMRC at the following address regarding disposal and/or acquisition of materials that may be appropriate for use:

Building Materials Resource Center
100 Terrace Street
Roxbury, MA 02120
617-442-8917

For the recycling, reuse and reprocessing of demolition waste and construction debris not suitable for use by the BMRC, we recommend speaking with Mark Lennon of The Institution Recycling Network (IRN) at 1-866-229-1962. IRN can divert up to 95 percent of waste from a job site. End markets have been identified for a wide variety of materials.

6. URBAN DESIGN COMPONENT

Northeastern will be expected to undertake design review on the Proposed Projects in accordance with standard BRA procedure. In addition to the BRA's Urban Design Department, the Boston Civic Design Commission (BCDC) will review the Proposed Projects. The DPIR should also respond to the following elements.

- **Signage and Lighting.** In preparing the DPIR, Northeastern shall provide the proposed design of any signage and lighting anticipated for the exterior of the building. Northeastern will be required to perform design review with the BRA Urban Design Department on any current and future plans for signage and lighting.
- **Views.** The DPIR shall present views of the Proposed Project from locations to be determined through consultation with the BRA's Urban Design Department.
- **Relationship to Surrounding Context.** The DPIR should describe the design of the Proposed Project in relationship to the surrounding urban context, including adjacent buildings, streets, and plazas. The DPIR should explain how the building design achieves the benefits and furthers the principles described on Pages 2-5, 2-6, 3-5, and 3-6 of the PNF. Of particular interest is the ability of the Proposed Projects to enhance, rather than detract from, the aesthetic and pedestrian qualities of the adjacent areas, notably the St. Botolph Street gateway into the campus, the Southwest Corridor Park, approaches to Ruggles Station, Ruggles Street, and the Tremont Street/Ruggles Street corner. The Proximity of the Proposed Project on P-18 West to Ruggles Station, combined with the potential development at Parcel P-3 and the resulting need for clear, safe, and pleasant pedestrian routes from Ruggles Station and Ruggles Street to Parcel P-3, require that Residence Hall I/Building J in particular relate sensitively to its surrounding context and serve to enhance the pedestrian experience.
- **Review of Impacts on Southwest Corridor Park by Other Agencies.** The DPIR should state whether or not any review of impacts on the Southwest Corridor Park by other City or state agencies is required, and describe the process for undertaking such review.
- **Design Submission Requirements.** The following urban design materials for the Proposed Project's schematic design must be submitted for the DPIR. Materials must be at the required scale and in a printed form that is reproducible, as well as in electronic file form:
 - A written description of program elements and space allocation for each element.
 - Black and white 8"x10" photographs of the site and neighborhood.

- Plans and sections for the area surrounding the project at an appropriate scale (1"=100' or larger) showing relationships of the Proposed Project to the surrounding area and district regarding massing, building height, open space, major topographic features, pedestrian and vehicular circulation, and land use.
- Sketches and diagrams of alternative proposals to clarify design issues and massing options.
- Eye-level perspectives showing the proposal in the context of the surrounding area; views should display a particular emphasis, on important viewing areas such as key intersections, accessways, or public parks/attractions. Long-ranged (distanced) views of the Proposed Project must also be studied to assess the impact on the skyline or other view lines. At least one bird's-eye perspective should also be included. All perspectives should show (in separate comparative sketches) both the build and no-build conditions. The BRA must approve the view locations before analysis is begun. View studies should be cognizant of light and shadow, massing and bulk.
- Aerial views of the project in perspective or isometric form.
- A site plan at 1"= 16' or larger showing:
 - Relationships of proposed and existing adjacent buildings and open spaces.
 - Open spaces defined by buildings on adjacent parcels and across streets.
 - Location of pedestrian ways, driveways, parking, service areas, streets, and major landscape features.
 - Accessible pedestrian, vehicular, and service access and flow through the parcel and to adjacent areas.
 - Phasing possibilities clearly indicating the scheme for completing the improvements.
 - Construction limits.
- Site sections at 1"=16' or larger showing relationships to adjacent buildings and spaces.
- A massing model at 1"=40' showing all buildings in the area and a study model at 1"=16' showing facade design.
- Drawings at an appropriate scale (e.g., 1"=8') describing architectural massing, facade design, and proposed materials including:
 - Site plans before and after construction.
 - Elevations in the context of the surrounding area.
 - Sections showing organization of functions and spaces.
 - Building plans showing ground floor and typical upper floor.
- A site survey at 1"=40' showing nearby structures, utilities and bench marks.
- A written and/or graphic description of the building materials and its texture, color, and general fenestration patterns is required for the proposed development.
- Electronic files describing the site and Proposed Project at Representation Levels one and two ("Streetscape" and "Massing") as described in the document Boston "Smart Model": CAD & 3D Model Standard Guidelines.
- The schedule for submittal of Design Development materials.

7. ENVIRONMENTAL SUSTAINABILITY

In addition to the overall campus-wide approach to sustainability discussion in the IMP Amendment, new development of the size and complexity of the Proposed Projects presents opportunities for sustainable design and construction to prevent damage to the environment, consistent with the goals of Executive Order 385 and recent initiatives of the Mayor and the BRA. Opportunities for sustainable design are described below and in the written comments of the City of Boston Environment Department and are incorporated herein by reference and made a part hereof. Not all the topics below need be addressed in the DPIR; rather, some of them constitute suggestions that can be discussed through the design process in conjunction with the BRA, the Green Roundtable, and the Environment Department.

- **Building Orientation, Envelope, and Façade Design.** Reduce thermal loads entering the building as much as possible. Consider the building orientation, envelope, and design carefully, including glazing selection, window and door shading, wall construction, roof color, and building shape. Make use of thermal mass to absorb heat and shift peak heating to off-peak hours. Building massing and façade treatment should respond to microclimate conditions and enhance appropriate solar control. The DPIR should describe any simulation designed to quantify the effects of these design choices.
- **Energy.** Energy conservation strategies should be explored at an early stage in the design and should include such approaches as taking advantage of natural day lighting, passive solar gain, passive cooling and ventilation which tie into HVAC systems, use of alternative energy strategies (including making the building design adaptable for the future inclusion of innovative energy and environmental technologies as they develop over time), in addition to properly sized efficient heating and ventilating systems, with heat recovery and other conservation strategies. Siting, orientation and massing of building should optimize passive strategies for light and energy management and design for natural and displacement ventilation. Building design should specify energy efficient HVAC and lighting systems, appliances, and other equipment, and solar preheating of makeup air. Early quantification and cost-benefit analysis through iterative energy simulation is helpful and would provide feedback on size of systems and envelope design early enough to impact those decisions.
- **Water Management.** Sustainable water management practices should be considered early in the site and building design process, and the process should explore integrated approaches to stormwater retention, treatment, and reuse, building and landscape water needs, and groundwater recharge. To the extent possible, the systems put in place should strive to work with the natural hydrology of the area, and the building should incorporate additional opportunities to conserve water beyond water-saving technologies required by law.

Northeastern's development should go beyond the minimum requirements related to stormwater runoff. In particular, the new developments proposed as part of this IMP Amendment should set a goal of reducing stormwater discharge from the sites into the storm sewers, not simply avoiding any additional runoff as is stated in the IMPNF, and of limiting disruption of natural water flows by eliminating stormwater runoff, increasing on-site infiltration, and eliminating contaminants. This goal should be considered in conjunction with strategies for reuse of retained stormwater and strategies for groundwater recharge, both where required (Residence Hall K) and not required but still potentially desirable (Parcel 18 East and West). The need to excavate contaminated soil from Parcel

18 may afford opportunities for on-site stormwater retention at little or no additional cost. Individual building design, site design, and street-level interventions should all maximize the opportunities for stormwater retention and treatment, as well as groundwater recharge, through innovative approaches.

Possibilities for using graywater for functions that are conventionally served by potable water should be explored. Stormwater captured from impervious areas or from roofs and hardscapes can be used for non-potable water uses.

The DPIR shall contain an evaluation of the project site's existing and future stormwater drainage and stormwater management practices. The DPIR shall illustrate existing and future drainage patterns from the project site and shall describe and quantify existing and future stormwater runoff from the site and the Proposed Project's impacts on site drainage. The Proposed Project's stormwater management system, including best management practices to be implemented, measures proposed to control and treat stormwater runoff and to maximize on-site retention of stormwater, measures to prevent groundwater contamination, and compliance with the Commonwealth's Stormwater Management Policies, also shall be described. The DPIR shall describe the project area's stormwater drainage system to which the project will connect, including the location of stormwater drainage facilities and ultimate points of discharge.

The DPIR shall respond to the comments from the Boston Water and Sewer Commission, which are contained in Appendix 1 and incorporated herein by reference.

- **Heat Island Effect.** New construction should take an active role in reducing the urban heat island effect. The design should incorporate plant materials and light colored (high reflectance and thermal emittance) products on the building and site to reduce the urban heat island effect.
- **Performance Monitoring.** Conduct annual audits of energy consumption, waste streams, and the use of renewable technologies.
- **Sustainable Materials.** Favor building materials and purchases of supplies that are non-toxic, made from recycled materials, and made with low embodied energy.
- **Management and Maintenance Plan.** Prepare an environmentally sound building/site management and maintenance plan. Build an easily accessible recycling system infrastructure into the project's design. Train faculty, staff, and students to observe standards of care for the building/site to maximize efficient use. Northeastern should have an understanding of the anticipated costs and maintenance associated with any new building before it is operational.

8. HISTORIC RESOURCES COMPONENT

The DPIR should summarize any historic resources that will be affected by the Proposed Project, the position of public agencies on those resources (including any necessary regulatory process), and present a plan to minimize the adverse impact of the Proposed Project.

9. INFRASTRUCTURE SYSTEMS COMPONENT

The DPIR must include an infrastructure impact analysis. The written comments of the Boston Water and Sewer Commission (BWSC) are included in Appendix 1 and are incorporated herein by reference and made a part hereof. Responses to the BWSC comments shall be included in the DPIR.

The discussion of Proposed Project impacts on infrastructure systems should be organized system-by-system as suggested below. The DPIR must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical communications (including telephone, fire alarm, computer, cable, etc.) utility systems, and the need reasonably attributable to the Proposed Project for additional systems or facilities. Thorough consultation with the planners and engineers of the utilities will be required, and should be referenced in the Infrastructure Component section.

Any system upgrading or connection requiring a significant public or utility investment, creating a significant disruption in vehicular or pedestrian circulation, or affecting any public or neighborhood park or streetscape improvements, constitutes an impact which must be mitigated.

- **Water and Sewer.** Provide the following information on the Proposed Project's impact on water and sewer infrastructure and on water quality. As appropriate, this information can be integrated with the sustainability sections of the IMP Amendment and the DPIR.
 - Estimated water consumption and sewage generation from the Proposed Project and the basis for each estimate. Include separate calculations for air conditioning system make-up water.
 - Description of the capacity and adequacy of water, sewer, and storm drain systems and an evaluation of the impacts of the Proposed Project on those systems.
 - Description of the Proposed Project's impacts on the water quality of Boston Harbor or other water bodies that could be affected by the project, if applicable.
 - Description of mitigation measures to reduce or eliminate impacts on water quality.
 - Description of impact of on-site storm drainage on water quality; if this is described more fully in another section, reference that analysis here.
 - Detail methods of protection proposed for infrastructure conduits and other artifacts, including BSWC sewer lines and water mains, during construction.
 - Detail the energy source of the interior space heating; how obtained, and, if applicable, plans for reuse of condensate.
 - Identification of measures to conserve resources, including any provisions for water recycling.
- **Energy Systems.** The DPIR should discuss the Proposed Project's approach to energy systems and conservation. As appropriate, this information can be integrated with the sustainability sections of the IMP Amendment and the DPIR. The discussion should include at a minimum the following:
 - Description of all energy (heat, electrical, cooling, etc.) requirements of the project and evaluation of the Proposed Project's impacts on resources and supply.

- Description of measures to conserve energy usage. and consideration of the feasibility of including solar energy provisions or other on-site energy provisions.
- **Other Systems.** The DPIR should also discuss emergency systems, gas, steam, optic fiber, cable, and any other systems impacted by the Proposed Project. The location of transformer and other vaults required for electrical distribution or ventilation must be chosen to minimize disruption to pedestrian paths and public improvements both when operating normally and when being serviced, and must be described.